



August Meetings

The Milwaukee Astronomical Society is on the summer schedule. There will be no Membership Meetings in the summer months of June, July, and August. However, there will be a **Board Meeting** on August 10th, the second Monday of the month starting at 7PM. Due to the COVID-19 pandemic the meeting will be held through Zoom videoconference. The Board Meetings are open to the membership and everybody is welcome to attend who is interested in organizational and Observatory related issues. If you are not a Board member but would like to attend please contact Tamas Kriska.

The **Astrophotography Focus Group** will meet on Wednesday, August 12th at 7 PM through Zoom videoconference. The specific topic of the meeting will be announced on the Google Group.

The **First Wednesday** How to Meeting will also be held through Zoom videoconference on August 5st, from 7:30 PM.

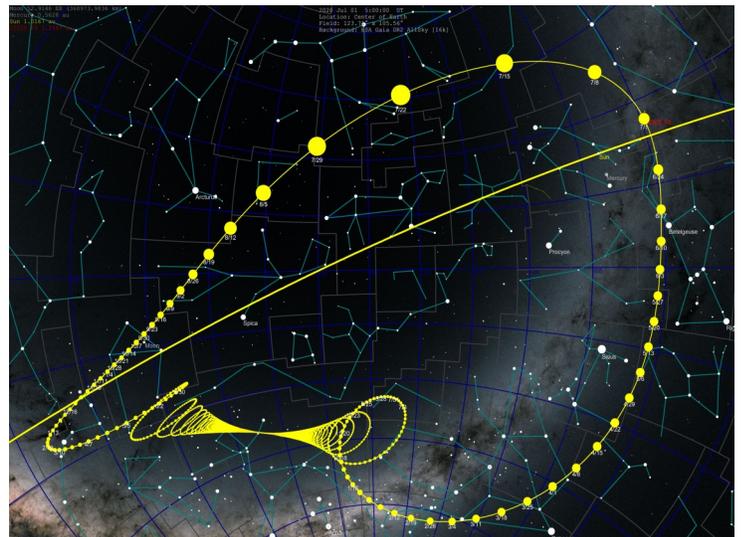
The MAS Google Group is as active as ever. Learn about the astronomical news, follow equipment related discussions, or just check out the latest images taken by fellow Club members.

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Comet NEOWISE C/2020 F3

This month we had an unexpected celestial visitor, the brightest comet in the northern hemisphere since Comet Hale-Bopp in 1997. The C/2020 F3, a long period comet with a near-parabolic orbit was discovered on March 27 during the NEOWISE mission of the Wide-field Infrared Survey Explorer (WISE) space telescope. On July 3, the comet emerged from perihelion around magnitude 1, making it bright enough to be visible to the naked eye. NASA's Parker Solar



By Tomruen - computed with my own software, FullSky Observatory, using trajectories from JPL Horizons.

Probe had captured an image of the comet, from which the diameter of the nucleus was estimated at approximately 5 km (3 mi). This passage increased the comet's orbital period from about 4400 years to about 6700 years.

It was widely photographed by amateur observers including many MAS members. Despite the difficulties of processing the data many beautiful widefield and close up photos were shared on the Google Group. A collection of them can be found on page 3 and 4 of this issue. It was a real treat to see and photograph this comet.

Observatory Director Report

The new steps are in for the entrance into A-Building and they look great. Sod has been planted around the steps and thanks goes out to Lee Keith for keeping up on the watering.

Pieces of equipment from the large donation made several months ago are being tested, cleaned up, and made ready for sale. Members will have the first chance to purchase items before they are listed on the internet.

I'd like to thank the keyholders for their extra help in getting the Observatory open for the members. Keep up the good work and stay safe doing it.

Respectfully Submitted,
Paul Borchardt, Observatory Director

Treasurer's Report

\$10,327.50	Starting Balance as of 06/06/2020
	<u>Expenditures</u>
\$2.31	PayPal fees
\$820.00	Insurance premium
\$541.95	Quonset new stairs
\$73.75	Other expenses
\$55.88	WE Energies
\$36.00	Water/Sewer
\$1,529.89	TOTAL Expenditures
	<u>Revenue</u>
\$70.25	Private donations
\$146.00	Membership dues
\$57.00	Astronomical League
\$4.00	Grants
\$277.25	TOTAL Revenue
\$9,074.25	Ending Balance as of 07/11/2020

Respectfully Submitted,
Sue Timlin, Treasurer

Membership Report

Since the last Report we received 5 new applications. We welcome Elizabeth Haase, Ian Thomson & Mike Leach, Francisco Lopez Ortiz, Dawne Zaffke & Family, and Dawn McElrone & Family. The total number of active members is 176.

Respectfully Submitted,
Jeff Kraehnke, Committee Chair

Minutes

Due to the COVID-19 outbreak the Board meeting was held on July 13st via Zoom videoconference and was called to order at 7:02PM by Tamas Kriska President. The following Board Members were present: Jim Bakic, Mike Bauer, Paul Borchardt, Clark Brizendine, Jason Doyle, Lee Keith, Jeff Kraehnke, Dennis Roscoe, Gabe Shaughnessy, Jim Schroeter, Sue Timlin, Mike Wagner, and Agnes Keszler. Gene Hanson (Founding Memeber), Randy Culp, and Russ Blankenburg were also present.

Minutes, and Treasurer's Report electronically submitted ahead of the meeting were approved.

Observatory Director's Report electronically submitted ahead of the meeting was amended and approved. Amendment: The water pressure tank has broken due to the winter frost. It has been repaired in May. For the future heating tape should be installed.

Membership Committee Report was electronically ahead of the meeting. Membership applications of Mitzi Keadle, Elizabeth Haase, and Guinevere Hicks were approved.

Old Business – Public Nights: Due to the COVID-19 situation all Public Nights are cancelled for this year.

Concrete step installation: Paul Borchardt will follow up for the back-door concrete slab pouring. Will ask for price. He is also working on the PVC box around the hydrant.

Front garage reroofing: Jeff Kraehnke received a quote of \$2490. A motion was made and carried to accept the quote and allocate \$3000 for the re-roofing project. Trees should be trimmed or removed prior the work.

Entrance gate: Jeff suggested to install a pair of drive way gate (DoMyOwn \$128/piece). A motion was made and carried to allocate \$500 for this project.

New Business – No new business.

Announcement – The next meeting will be on Monday, August 10th, 2020 via Zoom videoconference.

Respectfully Submitted,
Agnes Keszler, Secretary

Comet NEOWISE



Dennis Horvath



Tamas Kriska



Arun Hegde



John Asztalos



Chad Andrist



Nolan Zadra



Jeff Kraehnke

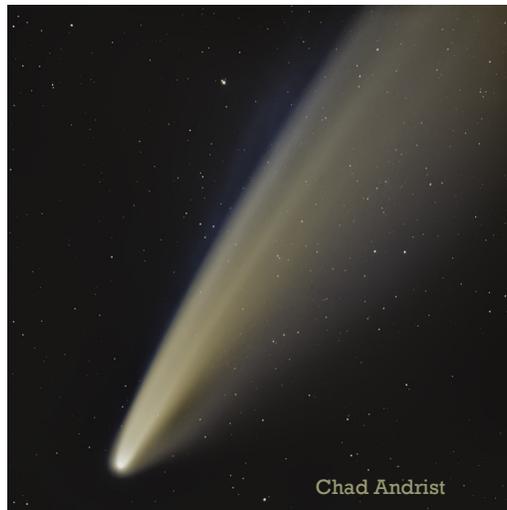


SHUBHENDU SADHUKHAN



Jim Bakic

Comet NEOWISE



In the Astronomical News

Astronomers Discover South Pole Wall, a Gigantic Structure Stretching 1.4 Billion Light-years Across

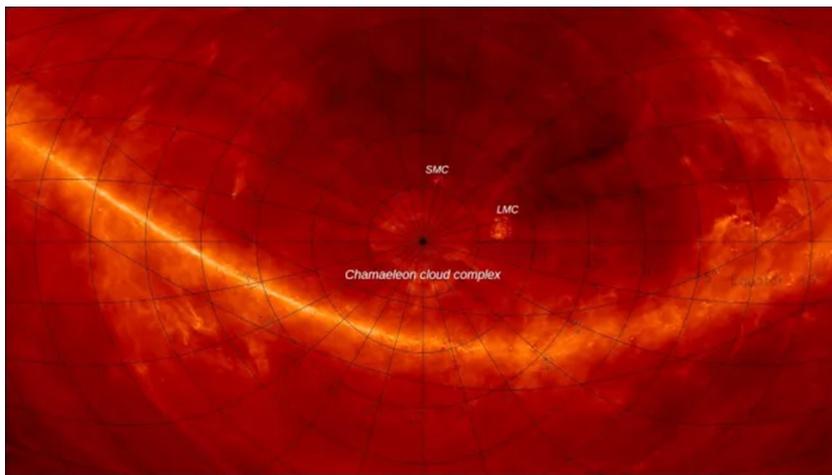
Spectacular 3D maps of the universe have revealed one of the biggest cosmic structures ever found — an almost-inconceivable wall stretching 1.4 billion light-years across that contains hundreds of thousands of galaxies. The South Pole Wall, as it's been dubbed, has been hiding in plain sight, remaining undetected until now because large parts of it sit half a billion light-years away behind the bright Milky Way galaxy. The South Pole Wall rivals in size the Sloan Great Wall, the sixth largest cosmic structure discovered.

Astronomers have long noticed that galaxies are not scattered randomly throughout the universe but rather clump together in what's known as the cosmic web, enormous strands of hydrogen gas in which galaxies are strung like pearls on a necklace that surround gigantic and largely empty voids. Mapping these intergalactic threads belongs to the field of cosmography, which is "the cartography of the cosmos," study researcher

Daniel Pomarede, a cosmographer at Paris-Saclay University in France, told Live Science. In 2014, Pomarede and his colleagues unveiled the Laniakea supercluster, a galactic collection in which our own Milky Way resides. Laniakea is 520 million light-years wide and contains roughly the mass of 100 million billion suns. For their new map, the team used newly-created sky surveys to peer into a region called the Zone of Galactic Obscuration. This is an area in the southern part of the sky in which the bright light of the Milky Way blocks out much of what's behind and around it.

Cosmographers typically determine the distance to objects using redshift, the speed at which an object is receding from Earth due to the expansion of the universe, which depends on their distance, Pomarede said. But he and his colleagues used a slightly different technique, looking at the

peculiar velocity of galaxies. This measurement includes redshift but also takes into account the motion of galaxies around one another as they tug at each other gravitationally, Pomarede said. The advantage of the method is that it can detect hidden mass that is gravitationally influencing how galaxies move and therefore uncover dark matter, that invisible stuff that emits no light but exerts a gravitational tug on anything near enough. By running algorithms looking at peculiar motion in galactic catalogs, the team was able to plot the three-dimensional distribution of matter in and around the Zone of Galactic Obscuration.



An all-sky map zoomed in on the South Pole, showing dust only. In this view, the South Pole Wall is not visible, though it is near the Chamaeleon complex. The bright line ringing shows the Zone of Galactic Obscuration. Credit: D. Pomarede, R. B. Tully, R. Graziani, H. Courtois, Y. Hoffman, J. Lezmy.

The resulting map shows a mind-boggling bubble of material more or less centered on the southernmost point of the sky, with a great sweeping wing extending north on one side in the direction of the constellation Cetus and another stubbier arm opposite it in the direction of the constel-

lation Apus. Knowing how the universe looks on such large scales helps confirm our current cosmological models, Neta Bahcall, an astrophysicist at Princeton University in New Jersey who was not involved in the work, told Live Science. But determining where exactly these enormous, crisscrossing structures begin and end is tricky, she added. "When you look at the network of filaments and voids, it becomes a semantic question of what's connected," she said.

The team acknowledges that they may not have plotted yet the entirety of the vast South Pole Wall. "We will not be certain of its full extent, nor whether it is unusual, until we map the universe on a significantly grander scale," they wrote.

Adam Mann, livescience.com

Adopt a Telescope Program - Signup Sheet

	Adopter	Scope	Location
1	Sue Timlin/John Hammetter	18" F/4.5 Obsession	Wiesen Observatory
2	Steve Volp	12.5" F/7.4 Buckstaff	B Dome
3	Robert Burgess	12.5" F/9 Halbach	A Dome (Armfield)
4	Russ Blankenburg	18" F/4.5 Obsession	Albrecht Observatory
5	Jeff Kraehnke	14" F/7.4 G-scope	Z Dome
6	Lee Keith/Tom Kraus	12" F/10 LX200 EMC	Tangney Observatory
7	Colin Boynton	10" F/6.3 LX200	Ray Zit Observatory
8	Tamas Kriska	Stellarvue SVQ 100 F/5.8	Jim Toeller Observatory
9	Paul Borchardt	Solar scope	SkyShed POD



MAS Observatory

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At Your Service

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Gabe Shaughnessy	262-893-4169
Steve Volp	414-751-8334
Mike Wagner	262-547-3321

August Keyholders

08/01	Sue Timlin	414-460-4886
08/08	Mike Bauer	262-894-1253
08/15	Steve Volp	414-751-8334
08/22	Paul Borchardt	262-751-0169
08/29	Gene Hanson	262-269-9576